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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/856,025	09/13/2001	Wing L. Sung	07121.0001U1	2247
23859	7590	11/26/2004	EXAMINER	
NEEDLE & ROSENBERG, P.C.			RAO, MANJUNATH N	
SUITE 1000			ART UNIT	
999 PEACHTREE STREET			PAPER NUMBER	
ATLANTA, GA 30309-3915			1652	

DATE MAILED: 11/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action**

Application No.

09/856,025

Applicant(s)

SUNG ET AL.

Examiner

Manjunath N. Rao, Ph.D.

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--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 12 November 2004 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

**PERIOD FOR REPLY** [check either a) or b)]

- a) ☐ The period for reply expires \_\_\_\_\_ months from the mailing date of the final rejection.
- b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on \_\_\_\_\_. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☐ The proposed amendment(s) will not be entered because:
- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
- (b) ☐ they raise the issue of new matter (see Note below);
- (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
- (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_

3. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.
4. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: See attached.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: \_\_\_\_\_.

Claim(s) objected to: 18-22.Claim(s) rejected: 1.Claim(s) withdrawn from consideration: 23-28.

8. ☐ The drawing correction filed on \_\_\_\_\_ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_.
10. ☐ Other: \_\_\_\_\_

Manjunath N. Rao, Ph.D.  
Primary Examiner  
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***Advisory Action***

Claims 1, 18-28 are now currently pending in this application. Claims 1, 18-22 are now under consideration. Claims 23-28 remain withdrawn from consideration as being drawn to non-elected invention.

Applicant's request for reconsideration filed on 11-12-04 has been considered and ENTERED, however, Examiner continues to maintain the rejection of claim 1 for the following reasons.

In response to the previous Office action, applicants have filed arguments traversing the rejection of claim 1 mainly arguing that the references of Sung et al. and Wakarchuk et al. do not render their invention *prima facie* obvious. Applicants argue that the reference of Wakarchuk et al. even though teaches that disulfide bonds have different effects on thermostability and that while TS1 and TS6 mutants showed improvement, TS2 mutant showed much less thermostability and that there is no suggestion in the reference of producing a xylanase comprising both a disulfide bridge and a basic amino acid at position 162. Examiner respectfully disagrees with such an argument regarding the reference. First of all, Examiner would like to remind applicants that the rejection is an obviousness rejection and that there is no requirement that the above reference must teach both the requirement of disulfide bridge and the basic amino acid at 162. Next, contrary to applicant's argument TS2 mutant may have exhibited less thermostability than TS1, but that does not lead one skilled in the art to totally rule out the role of disulfide bonds. The reference of Wakarchuk et al. lays the foundation for the exploration of the use of disulfide bonds to improve thermostability in xylanases.

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Applicant continues to traverse the reference of Sung et al. The reference clearly teaches the role of basic amino acid at position 162. Applicant argues that the NI-TX1 mutant in Sung et al. reference showed the same activity profile as that of TvX both of which showed much less activity than the natural enzyme and therefore there would be no motivation to further explore this mutation. Here again, applicant is taking the reference out of context of the claim. The “natural enzyme” that applicants are referring is a naturally thermostable enzyme. However, there is no such requirement in claim 1 and it is only the modified enzyme that becomes thermostable after said modification. Therefore, those skilled in the art trying to improve the thermostability of an enzyme which is not naturally thermostable would not be turned away from further exploring this mutation.

In view of all the above, Examiner continues to maintain the rejection of claim 1 as obvious under 35 U.S.C. 103(a) over the references of Wakarchuk et al. and Sung et al..

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Manjunath N. Rao, Ph.D. whose telephone number is 571-272-0939. The Examiner can normally be reached on 7.00 a.m. to 3.30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Ponnathapura Achutamurthy can be reached on 571-272-0928. The fax phone numbers for the organization where this application or proceeding is assigned is 703-872-9306/9307 for regular communications and for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.

A handwritten signature in black ink, appearing to read "Manjunath N. Rao". The signature is stylized with a large initial "M" and a long horizontal stroke.

Manjunath N. Rao, Ph.D.  
Primary Examiner  
Art Unit 1652

November 22, 2004